

Monadisches Datalog-Programm \mathcal{P} über τ_{rk} :

$$A(x) \leftarrow \text{label}_a(x). \quad (1)$$

$$A(x) \leftarrow \text{child}_1(x, y), A(y). \quad (2)$$

$$A(x) \leftarrow \text{child}_2(x, y), A(y). \quad (3)$$

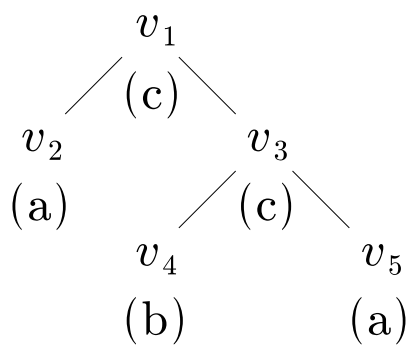
$$B(x) \leftarrow \text{label}_b(x). \quad (4)$$

$$B(x) \leftarrow \text{child}_1(x, y), B(y). \quad (5)$$

$$B(x) \leftarrow \text{child}_2(x, y), B(y). \quad (6)$$

$$R(x) \leftarrow \text{child}_1(x, y_1), A(y_1), \text{child}_2(x, y_2), B(y_2). \quad (7)$$

Beispielbaum:



$$T_A = \{v_2^{[1]}, v_5^{[1]}, v_1^{[2]}, v_3^{[2]}\}$$

$$T_B = \{v_4^{[1]}, v_3^{[2]}, v_1^{[3]}\}$$

$$T_R = \{v_1^{[3]}\}$$

Fixpunktberechnung:

$$\begin{aligned} \mathcal{T}_{\mathcal{P}}^0 = \{ & \text{root}(v_1), \text{leaf}(v_2), \text{leaf}(v_4), \text{leaf}(v_5), \\ & \text{child}_1(v_1, v_2), \text{child}_2(v_1, v_3), \text{child}_1(v_3, v_4), \text{child}_2(v_3, v_5) \\ & \text{label}_a(v_2), \text{label}_a(v_5), \text{label}_b(v_4), \text{label}_c(v_1), \text{label}_c(v_3) \} \end{aligned}$$

$$\mathcal{T}_{\mathcal{P}}^1 = \mathcal{T}_{\mathcal{P}}^0 \cup \{A(v_2)^{(1)}, A(v_5)^{(1)}, B(v_4)^{(4)}\}$$

$$\mathcal{T}_{\mathcal{P}}^2 = \mathcal{T}_{\mathcal{P}}^1 \cup \{A(v_1)^{(2)}, A(v_3)^{(3)}, B(v_3)^{(5)}\}$$

$$\mathcal{T}_{\mathcal{P}}^3 = \mathcal{T}_{\mathcal{P}}^2 \cup \{B(v_1)^{(6)}, R(v_1)^{(7)}\}$$

$$\mathcal{T}_{\mathcal{P}}^4 = \mathcal{T}_{\mathcal{P}}^3 = \mathcal{T}_{\mathcal{P}}^\omega$$

$$\text{Anfrage: } Q = \{v \mid R(v) \in \mathcal{T}_{\mathcal{P}}^\omega\} = T_R = \{v_1\}$$